

REMARKS

The request for a corrected filing receipt to correct the inventor's name to Allen Le Roy LIMBERG, filed with the Office of Initial Examination's Customer Service Center in July 2005, has apparently still not been acted upon. LIMBERG, not ROY, is applicant's family name. Allen Le Roy is applicant's given (first) name, which is three words. Applicant requests the Examiner's help in getting this matter corrected.

Claims 1-32 remain active in this application. Claims 4 - 21 and 23 - 32 are allowed.

Objections to Claims 3 and 22

Claims 3 and 22 were objected to for being dependent upon a rejected base claim. Both were indicated to be allowable if rewritten in independent form including all the limitations of the base claim.

Responsive to this objection, claims 3 and 22 are each amended to independent form. The word "further" before "equipped" does not appear in the preambles of claims 3 and 22 as so amended. The word "further" before "equipped" is surplusage that might be misleading, and it has also been deleted from claim 1 as currently amended.

In amending claim 3 to independent form, the limitation "that recovers baseband digital television signals" in regard to "further digital television signal reception apparatus" is omitted to avoid indefiniteness. The "baseband digital television signals" will be recovered by the The only element positively recited as being included in the further digital television signal reception apparatus is "frequency-conversion apparatus for converting said further amplified response to said first intermediate-frequency signal received from the second end of said transmission line upward in frequency to generate a radio-frequency signal in a frequency range that can be detected by a broadcast digital television receiver". This frequency-conversion apparatus does not recover baseband digital television signals, but rather converts intermediate-frequency digital television signals upward in frequency. The "baseband digital television signals" will be

recovered by the “broadcast digital television receiver” recited as a workpiece in the final paragraph of claim 3.

The patentability of claim 3 is presumably predicated on the frequency-conversion apparatus for converting said further amplified response to said first intermediate-frequency signal upward in frequency to generate a radio-frequency signal. If this be so, omission of the limitation causing indefiniteness does not make claim 3 unpatentable, and allowance of claim 3 as currently amended is solicited.

Prematurity of Rejection being made Final

The Examiner rejected claim 1 under 35 U.S.C. 102(b) as being anticipated by U. S. patent No. 4,145,720 (Weintraub *et alii*), but seeks to rely on U. S. patent No. 4,023,108 in support of his position that tuning of an RF amplifier must be electrically controlled. Anticipation requires that all elements of patent be found in a single description or structure; it is improper to find anticipation by using more than one prior art patent, none of which alone contained all elements of claimed invention. **Cardinal of Adrian, Inc., v. Peerless Wood Products, Inc. et al.**, 179 USPQ 527 (ED Mich S. Div. 1973). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single art reference. **Verdegaal Bros. v. Union Oil Co. Of America**, 2 USPQ2d 1051, 1053 (CA FC 1987). Since RF amplifiers are apt to be manually tuned and would be so tuned in a TV remote control device, such as that described by Weintraub *et alii*, their RF amplifier does not inherently require electrical tuning.

In order to rely on U. S. patent No. 4,023,108 or other reference descriptive of an electrically controlled RF amplifier for rejecting claim 1, rejection must be made under 35 U.S.C. 103 citing the new reference. Such rejection allows Applicant to amend his claims by right, rather than only by permission from the Examiner. Furthermore, rejection under 35 U.S.C. 103 allows the issues of obviousness of the invention considered as a whole to be considered directly, which issues have to be taken up circuitously through **Traitel Marble** when rejection is made under 35 U.S.C. 102.

If rejection had been made under 35 U.S.C. 103, patentability of claim 1 over the references of record is pretty clear. Patentable invention, within ambit of 35 USC 103 may result even if inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond results inherent in their use; it is proper to inquire as to reasons for making the combination; patentable invention may lie in discovery of source of problem even though remedy may be obvious once source of problem is identified; this is part of "Subject matter as a whole" which should always be considered in determining obviousness of an invention under section 103; court must be alert not to read obviousness into an invention on basis of applicant's own statements, i.e., court must view prior art without reading into that art applicant's teachings; issue is whether teachings of prior art would, in and of themselves and without benefits of applicant's disclosure, make invention as a whole, obvious. **In re Spinnoble**, 56PA 823, 405 F.2d 578, 160 USPQ 237 (CCPA 1969).

In rejecting claim 2 under 35 U.S.C. 103, the Examiner relies on U. S. patent No. 4,670,790 as a reference, but does not restate the rejection to include the reference. This unfairly deprives Applicant of the right to amend without leave from the Examiner.

Claim Rejections - 35 USC § 102

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U. S. patent No. 4,145,720 (Weintraub *et alii*). This rejection is traversed, although claim 1 is amended to clearer form to put it into better condition, especially if appeal becomes necessary.

Anticipation under § 102 can be found only when the reference discloses exactly what is claimed; where there are differences between the reference disclosure and the claim, the rejection must be based on § 103 which takes differences into account. **Titanium Metals Corp. v. Banner**, 778 F.2d. 775, 227 USPQ 773,777 (CA FC 1985). There is no anticipation under 35 U.S.C. § 102 unless all of the elements are found in exactly the same situation and united in the same way in a single art reference. Every element must be literally present, arranged as in the claim. **Richardson v. Suzuki Motor Co.**, 868 F.2d 1226, 9 USPQ2d 1913,1920 (CA FC 1989). The identical invention must be shown in as complete detail as is contained in the patent claim. **Id.** The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. **In re Bond**, 910 F.2d 831, 15 USPQ2d 1566

(CA FC 1990). Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. **In re Spada**, 15 USPQ2d 1655,1657 (CA FC 1990). The test for determining if a reference anticipates a claim of a patent is whether the reference contains within its four corners adequate directions for the practice of the claim being invalidated. See *Dewey & Almu Chemical Co. v. Minex Co., Inc.*, 124 F.2d 986, 52 USPQ 138 (2d Cir. 1942). **Straussler v. U.S.**, 143 USPQ 443 (US CI Ct 1964).

Claim 1 is directed to a remote tuner for VHF and UHF TV signals that replaces the conventional broadband low-noise amplifier as an antenna amplifier equipped for driving a transmission line several meters long with signals to be supplied to subsequent receiver apparatus packaged separately from the remote tuner. A primary reason for driving the transmission line several meters long with prescribed intermediate-frequency signals rather than the VHF and UHF TV signals received at the antenna is the desire to suppress echoes or ghosts caused by an imperfectly terminated transmission line. Ghosts or echoes can also arise in the over-the-air transmission channel that precedes the reception antenna. In order to terminate a transmission line perfectly with a resistive load of prescribed characteristic resistance, it is desirable to make the line an integral number of half wavelengths long. The line may have other prescribed lengths for other forms of perfect termination. The criteria for transmission line length are easier to satisfy if signals are contained within a restricted frequency spectrum.

While considerable ghosting of analog TV signals is tolerated by most viewers of TV recovered from such signals, ghosts or echoes in digital TV signals are apt to disrupt reception catastrophically. Accordingly, DTV receivers customarily employ adaptive channel-equalization and echo-suppression filtering. However, as Applicant taught DTV industry representatives preparing the Advanced Television System Committee document A/54 concerning DTV receiver design, substantially reducing echoes or ghosts caused by the antenna down-line being imperfectly terminated facilitates the procedures for adapting the channel-equalization and echo-suppression filtering.

The following statements are made in item 7 of the rejection responding to Applicant's arguments. "There is no evidence that the elements 17-20 and 22-23 in Weintraub *et alii* are

packaged together. In fact these elements are separately implemented according to the drawing.” The first statement is clearly in error, since from a fair reading of the Weintraub *et alii* reference as a whole (including their specification) it is clear that that elements **17-20** and **22-23**, as well as the elements **21** and **25-36**, are all packaged together within a unitary “electronic guided remote control device”.

Lines 17-19 in column 3 of the Weintraub *et alii* patent specify the contents of FIG. 2 as follows. “FIG. 2 is a block diagram drawing of the internal circuitry of Model 1, E.G.R.C. for the remote control of television reception.” Elsewhere in the patent “E.G.R.C.” is indicated to be the initials for “electronic guided remote control device”. Since FIG. 2 is indicated to be a block diagram drawing of the *internal* circuitry of the TV remote control device, this is ample evidence that all the elements shown in FIG. 2, except possibly the antennas, are packaged together as a single self-contained unit.

Attached hereto is page 602 of the 1961 edition of “Webster’s New Collegiate Dictionary”. Especial attention is drawn to definition 2c of the word “package” — to wit : “Any finished product which has been made ready for immediate operation, installation, or use by preassembling all essential elements into a self-contained unit, for example, a power unit, an air conditioning apparatus, a prefabricated building”. Or a remote tuner for installation at an antenna site and use as an antenna amplifier, one might add. The statement that “In fact these elements are separately implemented according to the drawing.” is beside the point concerning packaging of these elements together in a unitary package. Applicant uses the commonly accepted definition of “packaging”, as is clear from his specification and accompanying drawing, not the unusual and unique definition of the word propounded in the rejection.

The statement “Since these mechanical controls are located at the front panel of the television receiver, they are packaged separately from the tuner.” does not seem to make sense. The mechanical controls contain the switched inductors that would have been an essential part of the Weintraub *et alii* TV tuner, providing tuning of the RF amp **17** and frequency selection for the oscillator **23**. Weintraub *et alii* make no reference to the front panel of a TV receiver. They describe a TV remote control device and do not mention the surfaces of the device on which controls are mounted. Moreover, lines 17-19 in column 3 of Weintraub *et alii* indicate that the

channel selector **22** as well as the picture control **29**, the color control **30** and the sound control **31** are included with the internal circuitry of their Model 1, E.G.R.C. device for the remote control of television reception.

Applicant's claim 1 is amended to specify "said tuner contained in a package for installation together with said antenna and remote from any subsequent receiver apparatus" and "said tuner separately packaged from said subsequent receiver apparatus including said further digital television signal reception apparatus and from an apparatus for supplying remote control information". These amendments more explicitly state what was implicit in claim 1 as previously presented, further clarifying claim 1 for possible appeal. FIG. 2 of Weintraub *et alii* shows subsequent receiver apparatus packaged together with the tuner in their TV remote control device. So their tuner is not "remote from any subsequent receiver apparatus" as required by claim 1 as currently amended.

FIG. 2 of Weintraub *et alii* shows remote control apparatus for one or more analog TV receivers. Their FIG. 2 remote control apparatus includes the tuner components on which the rejection of claim 1 is based, so the tuner components are not separately packaged from apparatus for supplying remote control information.

The last full paragraph on page 5 of the rejection reads as follows.

"In considering applicant's argument that there is nothing in Weintraub et al. suggests that the element 20 is a cable driver amplifier and the transmission line is several meters long, the examiner disagrees. The amplifier 20 outputs an amplified signal to an electrical conductor or wire which conducts the amplified signal to an electrical conductor or wire which conducts the amplified electrical signal to the input of the demodulator 21. The conductor clearly meets the transmission line as claimed since they both serve the same function — transmit electrical signals. Although no specific length is mentioned in Weintraub et al., the conductor is intended to be in any length so long as the signal is in a tolerable limit. Accordingly, the claimed cable driver is clearly met by the intermediate amplifier 20 in Weintraub et al."

As established above, FIG. 2 of Weintraub *et alii* shows the internal circuitry of a TV remote control device. It would be farfetched to contend there is a transmission line several meters long coiled up in such a device. There are no means plus function clauses in Claim 1 to

call into consideration the function of any element. Similarity of function does not substitute for similarity of structure when one judges whether a combination of structural elements is anticipated under 35 USC § 102, Applicant reminds the Examiner.

The method of using a device is immaterial to the question of patentability of claims directed to structure of the device. **In re Dulberg**, 48 CCPA 992, 289 F.2d 522, 129 USPQ 348 (1961, rehearing den. 129 USPQ 350); **In re Lampert & Carlson**, 44 CCPA 58, 245 F.2d 253, 114 USPQ 163 (1957)); **In re Keegan**, 51 CCPA 1344, 331 F.2d 315, 141 USPQ 512c (1964). Even if the prior art device performs all the functions recited in the claim, the prior art cannot anticipate the claim if there is any structural difference. It should be noted, however, that means plus function limitations are met by structures which are equivalent to the corresponding structures recited in the specification. **In re Ruskin**, 347 F.2d 843, 146 USPQ 211 (CCPA 1965) as implicitly modified by **In re Donaldson**, 16 F.3d 1189, 29 USPQ2d 1845 (CA FC 1994). “[A]pparatus claims cover what a device *is*, not what a device *does*.” **Hewlett-Packard Co. v. Bausch & Lomb Inc.**, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (CA FC 1990) (emphasis in original). An invention need not *operate* differently than the prior art to be patentable, but need only *be* different. **Id.** Or perhaps more accurately, be *unobviously* different. footnote 2, **Id.**

Contrary to what the rejection postulates, Weintraub *et alii* do not specify “an electrical conductor or wire which conducts the amplified electrical signal to the input of the demodulator 21”. FIG. 2 of Weintraub *et alii* is a block diagram in which connections between blocks indicate nothing more than the direction of signal flow (note the arrows). From a legal viewpoint, this observation alone would preclude anticipation of claim 1 being found under 35 USC § 102 if the transmission line were a claimed element, rather than just a workpiece. **Richardson v. Suzuki Motor Co.** makes clear that the identical invention must be shown in as complete detail as is contained in the patent claim in order for the claim to be anticipated under 35 USC § 102.

An electrical conductor or wire is not a transmission line. A transmission line requires at least two conductors. One may argue that a short wire connection from the IF amplifier **20** to the demodulator **21** and chassis ground, circuit board ground plane, or another common return form a transmission line. However, such “transmission line” is so short in term of wavelengths of IF

signal that the transmission line effects giving rise to noticeable ghosts or echoes are minimal, and the problem that the invention solves does not appear in significant measure. There is seldom a well-defined characteristic impedance in such connections, and the load on the previous amplifier is determined primarily by the input impedance of the next stage rather than the characteristic impedance of the connection. Such connection simply is not the electrical equivalent of a transmission line several meters long, as supposed when rejecting claim 1 under 35 USC § 102.

Contrary to what is implied in the last full paragraph on page 5, the characteristic impedance of a transmission line is not affected by its length. The characteristic impedance of a cable is established by its series inductance per unit length and its shunt capacitance per unit length. The characteristic impedance of the cables used as antenna downloads is low, ranging from 51 to perhaps as much as 2800 ohms at most, but is generally 75 ohms for a coaxial cable and 300 ohms for a twin-lead cable. The source impedance of a cable driver amplifier is prescribed, so that it does not mis-terminate the transmission line and give rise to return echoes. There is usually very little, if any, voltage gain in a cable driver amplifier. A conventional IF amplifier is structured to provide voltage gain to IF signals prior to demodulation, rather than being structured to drive a cable from a proper source impedance.

Lines 9-16 of column 6 of Weintraub *et alii* contain the following description. “The intermediate frequency signal passes into the intermediate frequency amplifier (19) whereby it is amplified. Then it passes into intermediate frequency amplifier (20) where it is amplified a second time. Thereafter the amplified intermediate frequency signal passes through the demodulator (21) whereby the radio frequency carrier is separated from the video-audio-color signal.” One skilled in the art would interpret this as describing a then-conventional two-stage IF amplifier using interstage coupling transformers followed by a demodulator **21** probably of envelope detector type. Amplification is apparently the same type in both IF amplifiers **19** and **20**, which suggests voltage amplification in both instances. This would be customary for obtaining the voltage gain necessary for the demodulator **21**, especially if it were envelope type. The fact that the IF amplifier **20** supplies amplified IF signal directly to the analog demodulator **21**, packaged together therewith in the same electronic-guided remote control device, is additional indication that the intermediate-frequency amplifier **20** is not designed to drive a cable

or other transmission line several meters long. Weintraub *et alii* emphasize in their patent that their remote control device has *wireless* connections to the TV sets it controls, not cable connections. This is pretty definite indication that the IF amplifier **20** is not designed to drive a cable or other transmission line several meters long connecting to later reception apparatus.

In any case, **Richardson v. Suzuki Motor Co.** makes clear that the identical invention must be shown in as complete detail as is contained in the patent claim in order for anticipation. **Richardson v. Suzuki Motor Co.** requires that every element must be literally present, *arranged as in the claim*. There is simply nothing in the Weintraub *et alii* patent to indicate that their tuner is “equipped for driving a first end of a transmission line several meters long with said intermediate-frequency signals to be supplied from a second end of said transmission line to further digital television signal reception apparatus that recovers baseband digital television signals”, nor is there any convincing evidence that their TV remote control device would inherently be so equipped.

Insofar as how Applicant’s claim 1 would be applied against infringing apparatus is concerned, the recited “intermediate-frequency voltage amplifier” can, by way of example, be an IF amplifier with two stages such as 19 and 20 in FIG. 2 of Weintraub *et alii*.

The obvious-to-try argument “Although no specific length is mentioned in Weintraub *et al.*, the conductor is intended to be in any length so long as the signal is in a tolerable limit.” has no place in a rejection under 35 USC § 102. Intention is of no consequence in application of 35 USC § 102 which establishes the requirement for novelty, and Weintraub *et alii* offer no statement as to their intentions. The examiner is indulging in impermissible reconstruction based on hindsight gained from Applicant’s disclosure. [A]n applicant’s statement of the purpose of the work is not prior art. **In re Dow Chemical Co.**, 837 F2d 469, 5 USPQ2d 1529, 1531 (CA FC 1988). Examiner should cite for actual consideration any art that he may consider pertinent and not rely on matters of judicial notice at exact point at which patentable novelty is argued. **Ex parte Cady**, 148 U.S.P.Q. 162 (POBA 1965).

Except for the cable driver amplifier included in the claim 1 remote tuner and the packaging of that remote tuner, the components of that remote tuner are found in many current-day TV receivers. Applicant freely admits this. The fact of those components other than the

cable driver being found together and similarly operated in prior art other than Weintraub *et alii* is immaterial for answering the 35 USC § 102 rejection based on the single reference, Weintraub *et alii*. The issues insofar as answering the 35 USC § 102 rejection is concerned are simply whether Weintraub *et alii* **literally** shows or describes each claimed element arranged in exactly the same situation and united in the same way as in claim 1, and whether the identical invention is shown or described in as complete detail as is contained in claim 1.

Contrary to what is asserted in the rejection, neither claim 1 or claim 2 specifies an electrically controlled RF amplifier nor excludes an electrically controlled RF amplifier. Weintraub *et alii* does not disclose an electrically controlled RF amplifier. Whether or not U. S. patent No. 4, 023,108 shows an electrically controlled RF amplifier does not appear to be at issue. Claim 1 is rejected as anticipated by Weintraub *et alii* under 35 USC § 102; U. S. patent No. 4, 023,108 is immaterial to the issue presented in the rejection.

As pointed out in **Richardson v. Suzuki Motor Co.** (op. cit.) and many other court decisions there is no anticipation under 35 U.S.C. § 102 unless all of the elements are found in exactly the same situation and united in the same way in a *single* art reference. The Weintraub *et alii* patent does not incorporate U. S. patent No. 4, 023,108 by reference nor refer to it in any way. Therefore, 4, 023,108 is immaterial to the issue of whether the Weintraub *et alii* patent anticipates Applicant's claim 1 under 35 U.S.C. 102. If the Examiner wishes to rely on 4, 023,108 as well as Weintraub *et alii* for anticipating Applicant's claim 1, rejection must be made under 35 U.S.C. 103 which permits the combining of references.

Electronic tuning is an essential part of Applicant's invention, since the antenna and remote tuner are usually located so that it is difficult for channel selection to be done manually. Accordingly, Weintraub *et alii* itself has to *literally* disclose electronic channel selection in order for it to anticipate claim 1 under 35 USC § 102, according to **Richardson v. Suzuki Motor Co.**

Contrary to what the rejection alleges, Weintraub *et alii* provide no indication that their Fig. 2 TV remote control contains "electrically controlled frequency-conversion circuitry" or "first electrically controlled frequency-conversion circuitry". Some sort of manually actuated device would be required so a person could select channels in the Weintraub *et alii* TV remote control, but there is no suggestion of need for anything beyond such manual control. Since

Weintraub *et alii* provide no description of the channel selector **22** beyond its function of selecting channels, one familiar with 1979 practice would presume it was the rotary switch tuning apparatus with switched inductors commonly used at that time. The only statement concerning channel selector **22** appears in lines 3 & 4 of column 6 — to wit, “Channel selector (22) selects the selected channel.” The FIG. 2 block diagram reveals nothing further. Weintraub *et alii* provides no details concerning the channel selector **22**, let alone details of electrical control of channel tuning.

The rejection hypothesizes electronic tuning measures of which there is no actual evidence in the Weintraub *et alii* patent. Weintraub *et alii* do not allude to a frequency synthesizer in their patent to furnish any clue they used one. Because the Weintraub *et alii* patent does not incorporate U. S. patent No. 4, 023,108 by reference nor refer to it in any way, 4, 023,108 is immaterial to the issue of whether the Weintraub *et alii* patent anticipates Applicant’s claim 1 under 35 U.S.C. 102. (One observes that 4, 023,108 did not issue until well after the July 22, 1976 filing date of the original Weintraub *et alii* application, which was continued in the application from which 4, 023,108 issued. This suggests that Weintraub *et alii* did not use a frequency synthesizer, rather than they did.) The statement in item 7 of the rejection “The channel selector **22** is essentially a voltage provider for providing different control voltage levels to the oscillator **23** and RF amplifier **17**.” finds no support in the Weintraub *et alii* patent. The statement is apparently some sort of reference to the channel selection device **21** in 4, 023,108. In 4, 023,108 the channel selection device **21** is not connected for providing different control voltage levels to the VCO **17** and RF amplifier **11**. The phase detector **24** is connected via lowpass filter **25** for supplying VCO **17** and RF amplifier **11** with control voltages. The channel selection device **21** in 4, 023,108 directly controls a programmable frequency divider **20** in the frequency synthesizer. While an ultimate function is channel selection both in 4, 023,108 and in Weintraub *et alii*, it is clear that the channel selection device **21** in 4, 023,108 is not a similar physical device to the channel selector **22** in Weintraub *et alii*, nor do they employ similar operating principles. Apparently the similarity of names of the elements **21** and **22** is the source of the confusion in the rejection.

The rejection includes the following incorrect statement: “The channel selector **22** meets the remote control information supplying apparatus as claimed because the channel selector **22** is

remotely located from the mixer **18** and RF amp **17** or the channel selector is relied upon a remote control for carrying out the channel changing operation.” Since lines 17-19 in column 3 of the Weintraub *et alii* patent indicate that FIG. 2 is a block diagram drawing of the *internal* circuitry of the TV remote control device, it is clear that all the elements shown in FIG. 2 except possibly the antenna **16** are packaged together in a single device. So, while separate from the mixer **18** and RF amp **17**, clearly the channel selector **22** is located in proximity to the mixer **18** and RF amp **17** rather than being located remotely from the mixer **18** and RF amp **17**. Since FIG. 2 shows a TV remote control, it seems improbable that the channel selector **22** would be responsive to remote control information from a different remote control device. FIG. 2 shows no such remote control device communicating with the channel selector **22**. Lines 17-19 in column 3 of Weintraub *et alii* indicate that the channel selector **22** is included with the internal circuitry of their Model 1, E.G.R.C. device for the remote control of television reception.

Contrary to what the rejection alleges, the mixer **18** in the TV remote control shown in FIG. 2 of the Weintraub *et alii* patent is not “first electrically controlled frequency-conversion circuitry included within said electrically controlled front-end circuitry for supplying a first intermediate-frequency signal with prescribed first carrier frequency as a frequency-conversion response to the one of the radio-frequency signals within said very-high-frequency or ultra-high-frequency bands that is selected for reception by said electrically controlled front-end circuitry, that said one of the radio-frequency signals being selected for reception responsive to said remote control information supplied from said apparatus for supplying remote control information”. Frequency-conversion circuitry requires a source of mixing signal, such as their oscillator **23**, besides a mixer. The frequency of the oscillations from their oscillator **23** is controlled by the channel selector **22** packaged within their TV remote control apparatus. according to lines 17-19 in column 3 of Weintraub *et alii*. The frequency of the oscillations from their oscillator **23** is not controlled by the “remote control information supplied from said apparatus for supplying remote control information” as specified by Applicant’s claim 1, which further requires said apparatus for supplying remote control information to be separately packaged from the tuner.

The 35 U.S.C. 102(b) rejection states: “The television receiver is able to receive both the digital format and analog format television signals.” So can a Yagi antenna cut for the TV

channels, but nobody would seriously allege that claim 1 is anticipated by such an antenna. The real question is whether a digital broadcast television signal could be amplified in its entirety by the tuner of an analog TV signal receiver, so the digital broadcast television signal could be usefully received by the further digital television signal reception apparatus. The IF amplifier for a DTV receiver has phase-linear 5.38 MHz bandwidth between 3-dB down points and is appreciably wider in bandwidth than the IF amplifier for an analog TV receiver with intercarrier sound. The IF amplifier for a DTV receiver is very different from the IF amplifier for an analog TV receiver.

Anyone of ordinary skill in the art of TV receiver design knows the IF amplifier in an analog TV set includes VSB filtering prior to the demodulator, which filtering in the past was incorporated into the bandpass coupling transformers. So, the IF amplifier will not pass a digital TV signal satisfactorily because of the carrier-end roll-off that is 6 dB down at picture carrier 1.25 MHz from channel edge. This roll-off seriously attenuates the digital pilot carrier 0.31 MHz from (lower) channel edge in a DTV signal, which carrier is used for phase-locking the conversion of DTV signal to baseband.

Since Weintraub *et alii* do not show a separate sound IF amplifier, their TV remote control obviously uses intercarrier sound. The IF amplifier of an analog TV receiver of intercarrier-sound type will attenuate both the digital carrier region and the vital frequencies remote from the digital carrier that permit the high symbol rate needed for HDTV. The DTV signal includes critical frequencies up to 0.31 MHz from (upper) channel edge, which will be severely reduced in amplitude and distorted in phase by the filtering that reduces the sound carrier of the analog TV signal. The Weintraub *et alii* receiver is obviously an intercarrier-sound receiver as first described in U. S. patent No. 2,448,908 (Parker). See Figs. 1 and 4 of Parker. U. S. patents Nos. 2,891,105 (Fig. 2) and 4,599, 652 (Fig. 1a) document what IF amplifier response was in analog TV receivers with intercarrier sound throughout the period of the Weintraub *et alii* invention. Note that all three references as show the carrier-side roll-off 6dB down at picture carrier.

As the TV spectrum became more crowded in certain parts of the country (e.g., Princeton, NJ where both New York City and Philadelphia TV signals are received) traps for

adjacent-lower-channel sound became part of IF amplifier designs for TV receivers, suppressing vestigial sideband frequencies near channel edge more than Parker did. Columns 1 and 2 of U. S. patent No. 4,263,619 (Therault) describes the need for adjacent-channel traps for the sound carrier of the lower adjacent channel and the picture carrier of the upper adjacent channel. Lines 17-26 of column 1 of U. S. patent No. 5,767,603 (Kadota *et alii*) describes piezoelectric resonators implementing adjacent-channel traps for the sound carrier of the lower adjacent channel and the picture carrier of the upper adjacent channel.

Color TV receivers use a trap to further reduce FM sound carrier to avoid the 920 KHZ beat with chroma appearing in detected video (sometimes referred to as "sound in video"). U. S. patent No. 3,114,889 (Avins) describes the bifilar-tee trap commonly employed. This trap was disclosed by Radio Corporation of America through its Industry Service Laboratory to television receiver licensees in licensee bulletin LB-961 titled "An Analysis of the Bifilar-T Trap Circuit" issued Sep. 16, 1954 (my copy of which was lost when Hurricane Charlie wrecked my house). This sound trap removes the upper frequencies critical to the high symbol rate used in DTV signals.

In today's analog TV receivers the shaping of the IF channel is commonly done using a SAW filter, but the shaping is the same. While a digital broadcast TV signal cannot be passed — let alone amplified — in its entirety by the tuner of an analog TV signal receiver, an analog TV signal can be passed and amplified in its entirety by Applicant's remote tuner, which uses wider bandwidth IF amplifiers.

In order for anticipation to be found under 35 USC § 102, **In re Spada** requires a reference to describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. So do **Dewey & Almu Chemical Co. v. Minex Co., Inc.** and **Straussler v. U.S. Weintraub et alii** failed to place a person of ordinary skill in the field of antenna amplifiers in possession of Applicant's invention at the time it was made. Any relevance of Weintraub *et alii* to solving problems with antenna amplifiers was discerned by the Examiner only with hindsight gained by Applicant's disclosure. There is nothing in the Weintraub *et alii* patent to direct one towards the use of the tuner as antenna amplifier to drive an antenna download when receiving DTV signals nor to indicate the

superiority over prior-art wideband or fixed-tuned low-noise antenna amplifiers for such purpose.

In general, the omission of an element with a corresponding omission of its function does not constitute invention, per **Richards v. Chase Elevator Co.**, 159 US 477. The exception to this rule holds that if an element does not contribute to the success of the combination but prevents or defeats it, its omission may be invention. See **Hardinge Pros., Inc. v. Marr Oil Heat Mach. Corp.**, 27 F.2d 799. The analog demodulator 21 of Weintraub *et alii* TV remote control apparatus destroys any usefulness of digital television signals processed by preceding television receiver elements. An analog TV receiver of their time customarily used envelope detection, but envelope detection of digital TV signals is not satisfactory because the natural carrier wave is replaced by a much smaller pilot carrier wave. If synchronous or exalted-carrier detection is used in an analog TV receiver, the analog demodulator still destroys any usefulness of digital television signals. This is because the video carrier of an analog TV signal is nominally 1.25 MHz from the lower boundary of the TV channel, rather than the 310 MHz that the carrier of a DTV signal nominally is. Applicant's claim 1 invention fits squarely within the **Hardinge Pros., Inc. v. Marr Oil Heat Mach. Corp.** exception.

Several structural differences between claim 1 and the Weintraub *et alii* FIG. 2 TV remote control device are pointed out above. As argued at some length in the response to the previous Office Action, the fact that there are structural differences from Weintraub *et alii*, however slight, calls into consideration the doctrine of **Traitel Marble Co. v. U.T. Hungerford Brass & Copper Co.**, 18 F.2d 66, 68. In that case Judge Learned Hand wrote as follows:

"Assuming, for argument, that the law is absolute that there can be no patent for the new use of an old thing, that is because the statute allows no monopolies merely for ideas or discoveries. If the thing itself be new, very slight structural changes may be enough to support a patent, when they presuppose a use not discoverable without inventive imagination. We are to judge such devices, not by the mere innovation in their form or material, but by the purpose which dictated them and discovered their function."

This opinion was cited with approval in **Shell Development Co. v. Watson, Comr. Pats.**, 149 F. Supp. 279, 113 USPQ 265 (D. D.C. 1957), *aff'd per curiam* 282 F.2d 861, 116 USPQ 428 (D.C. Cir. 1958).

Applicant taught the DTV industry that the problems with severe multipath encountered by channel-equalization and echo-suppression filtering in receiver apparatus for digital television signals within very-high-frequency or ultra-high-frequency bands prescribed for terrestrial television broadcast transmitters can be substantially mitigated. This is accomplished using a remotely controlled TV tuner at the antenna for converting those signals to prescribed intermediate frequencies before applying them to a transmission line from the antenna to subsequent DTV reception apparatus containing the channel-equalization and echo-suppression filtering. This simplifies properly terminating the transmission line to avoid the generation of pronounced echoes. Furthermore, the TV tuner at the antenna can automatically deal with the problems arising from strong out-of-channel interfering signals that one encounters when using the broadband low-noise antenna amplifiers of the prior art. There is no need or substantially reduced need for channel-blocking filters at the antenna. Because of the closer packing of DTV signals in the RF spectrum, there are increasing problems with strong out-of-channel interfering signals at many reception sites.

None of this teaching is found in the Weintraub *et alii* patent. Examination would be better directed to what applicant considers his invention to be, rather than digressing to impermissible reconstruction attempts.

Claim Rejections - 35 USC § 103

Claim 2 is rejected under 35 USC 103(a) as being unpatentable over U. S. patent No. 4,145,720 (Weintraub *et alii*) in view of U. S. patent No. 6,118,499 (Fang). This rejection is traversed for failing to make a *prima facie* case for obviousness, although claim 2 is amended to place it into better condition, especially if appeal becomes necessary.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. **In re Royka**, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); MPEP 2143.03. "All words in a claim must be considered in judging the patentability of

that claim against the prior art". **In re Wilson**, 424 F.2d 1382, 165 USPQ 494,496 (CCPA 1970).

The rejection of claim 2 is apparently based on the impression that IF amplifiers for analog TV signals are adequate for broadcast DTV signals, which impression would be incorrect, as pointed out above in the response to the 35 USC 102 rejection of claim 1.

The transmission line several meters long is not just a workpiece in claim 2, but is an element of the combination that is not shown in Weintraub *et alii* or in Fang. The attempt to conjure up a transmission line based on connection of elements **20** and **21** within the wireless TV remote control shown in Fig. 2 of Weintraub *et alii* is improper use of the reference when conducting examination under 35 USC 103. Prior art patents are references only for what they clearly disclose or suggest; it is not proper use of a patent as a reference to modify its structure to one which prior art references do not suggest. **In re Randol & Redford**, 425 F.2d. 772, 57 P.A. 1085, 165 USPQ 586, 588 (CCPA 1970).

FIG. 2 of Weintraub *et alii* is a block schematic diagram of signal flow in their TV remote control device. There is no clear indication in Weintraub *et alii* that the connection of elements **20** and **21** differs from the connection of elements **17** and **18**, the connection of elements **18** and **19**, or the connection of elements **19** and **20**, for example. Evidently, the Examiner relies on Applicant's disclosure to choose which connection in Weintraub *et alii* should be made via a transmission line several meters long. This is impermissible reconstruction of Applicant's invention, since his own disclosure is depended on as a guideline for the reconstruction.

The Examiner seeks to use U. S. patent No. 4,670,790 (Sawadi *et alii*) as glue for connecting Weintraub *et alii* to Fang in the attempt to reconstruct Applicant's claim 2 combination. Sawadi *et alii*, which issued in 1987, describes a TV receiver in which analog TV signal is digitized after its demodulation. They do not describe a TV receiver for receiving digital broadcast television signals, which type of TV receiver began to be used in the middle 1990s. Digital broadcast television signals are modulated with symbol codes consisting of only a select few signal levels, rather than being modulated with analog TV signals as in Weintraub *et alii* and in Sawadi *et alii*. The symbol codes in broadcast DTV encode error-correction-coded

packets of digital data that include compressed video and compressed audio information. The Examiner is confused by the words “digital television receiver” variously referring to these two different types of television receiver. Both Fang’s and Applicant’s work was directed to TV receivers for receiving digital broadcast television signals, not to TV receivers in which analog TV signal is digitized after its demodulation. Arguably, the Weintraub *et alii* apparatus might be modified to digitize the analog TV signal supplied from their demodulator 21, motivated by Sawadi *et alii*, but this does not produce Applicant’s invention nor link Weintraub *et alii* up with Fang in any straightforward and natural way. Sawadi *et alii* did not motivate the development of digital broadcast television and the subsequent Fang DTV receiver. It is well-known that the desire to compress video and audio signals so as to be able to fit high-definition surround-sound TV within a 6-MHz-wide channel was the motivation behind the development of digital broadcast television. So, the reasonable conclusion is that Sawadi *et alii* is only a red herring and is not really pertinent to the patentability of Applicant’s invention under 35 U.S.C. 103.

The rejection of claim 2 is made ignoring elements 25-36 Weintraub *et alii* relied on for implementing the control and remodulation functions that are critical to a remote control device for analog TV receivers. The rejection of claim 2 is made ignoring elements Fang relied on for driving his digital demodulator 120. “.. it is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” **In re Wesslau**, 353 F.2d 238,241; 147 USPQ 391,393 (CCPA 1965). “It is not permissible to pick and choose only so much of any given reference as will support a given position and ignore the reference in its totality.” **Lubrizol Corp. v. Exxon Corp.**, 896 F. Supp. 302, 322; 7 USPQ2d 1513, 1527 (N.D. Ohio 1988). References may be combined to establish anticipation, but they must suggest the combination itself and not merely all the elements which make up combination. **Minnesota Mining and Mfg. Co. v. Johnson & Johnson**, 179 USPQ 216 (ND I11 E. Div. 1973). The absence of the transmission line several meters long from the combination and the combining of only certain selected elements from Weintraub *et alii* and from Fang are indicative that the references are merely parts boxes that the Examiner uses for reconstructing Applicant’s structure according to the blueprint provided by Applicant’s own disclosure. This court has repeatedly cautioned against employing hindsight by using the applicant's disclosure as a blueprint to reconstruct the

invention out of isolated teachings in the prior art. *See, e.g., Grain Processing v. American Maize-Products Co.*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988). *In re Kramer*, 18 USPQ2d 1415, 1416 (CA FC 1991).

The absence of the transmission line several meters long from the combination guts the Examiner's attempt to combine Weintraub *et alii* and Fang for other reasons, since an element of claim 2 essential to the inventive combination is missing and Applicant's inventive teaching is left out of consideration. An error in the rejection of claim 2 is that it focuses on the obviousness of the modifications, rather than on the obviousness of the claimed invention *considered as a whole* according to the mandate of 35 USC 103.

Claim 2 specifies "demodulation and analog-to-digital conversion circuitry connected for responding to said first intermediate-frequency signal to generate a baseband digital television signal". Applicant points out that a baseband digital television signal is neither a video signal that Weintraub *et alii* could utilize for remodulation on a video carrier nor an audio signal that Weintraub *et alii* could utilize for remodulation on an audio carrier. A baseband digital television signal recovered from an 8VSB terrestrial digital television broadcast, for example, is a succession of eight-level analog symbols that still has to be symbol decoded in order to get a data stream. The data stream is subsequently de-interleaved and error corrected to recover MPEG-2-compliant data packets. The data packets containing compressed video information have to be decoded by an MPEG-2 packet decoder to obtain one or more digital video signals. The data packets containing compressed audio information have to be decoded by an AC-3 packet decoder to obtain digital audio signals. Similar observations can be made concerning a baseband digital television signal recovered from a COFDM or QAM digital television broadcast.

Fang's "demodulation and analog-to-digital conversion circuitry connected for responding to said first intermediate-frequency signal to generate a baseband digital television signal" does not recover signal that the Weintraub *et alii* remote control apparatus can control and then use for remodulating the video carrier. Simply replacing the analog demodulator 21 of Weintraub *et alii* with Fang's analog-to-digital converter 100, digital filter 110 and digital demodulator 120 arguably may reconstruct the apparatus of Applicant's claim 2. However, it

results in the Weintraub *et alii* remote control apparatus being rendered inoperable, because the modified remote control apparatus proposed by the Examiner does not have the further decoding apparatus needed to recover video and audio signals to be controlled and remodulated on the video and audio carriers. If a proposed modification would render the prior art invention being modified unsatisfactory for its originally intended purpose, then there is no suggestion or motivation to make the proposed modification. **In re Gordon**, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (CA FC 1984); MPEP § 2143.01.

Relevant portions of reference include not only teachings that would suggest particular aspects of the invention to one having ordinary skill in art, but also teachings that would lead away from the claimed invention. **In re Mercier**, 185 USPQ 774 (CCPA 1975).

Weintraub *et alii* state as follows at the outset of their specification. “This invention relates itself to the improvement in the method of remote control by demodulation and modulation for providing information on a baseband format and for varying information and functions to remodulate and transmit the signal to a remotely located receiver without connections or modifications to the receiver and the electronic guided remote control device and apparatuses employable with the same.” Normally, the remote control apparatus described by Weintraub *et alii* would not be looked to for solving the problems of echoes on the download from the reception antenna. The remodulation and transmission of the signal to a remotely located receiver **without connections or modifications to the receiver**, but rather by **wireless** means as taught by Weintraub *et alii* suggests away from, rather than towards, antenna amplifier apparatus for driving a transmission line connection to a receiver. Applicant’s FIG. 2 local DTV receiver is modified quite substantially from an ordinary DTV receiver; there are no elements used for channel selection and there is *wired* remote control apparatus for controlling channel selection by the remote tuner of Applicant’s FIG. 1.

Fang requires a double-conversion receiver to generate an IF DTV signal lower than the conventional 41-47 MHz, which lower-frequency IF DTV signal is free from interference by image signals, for application to his analog-to-digital converter. See lines 24 - 41 in column 2 of Fang **100**. This teaches away from combination with Weintraub *et alii*. Weintraub *et alii* show a single-conversion receiver, and one of ordinary skill in the art would presume FIG. 2 used the

41-47 MHz IF conventionally used in TV receivers of the time. Fang indicates that replacing his front end with one like that shown in Weintraub *et alii* is unsatisfactory for receiving DTV broadcast signals, especially in the packed spectrum. More importantly, as noted above in the response to the 35 USC 102 rejection of claim 1, the Weintraub *et alii* analog TV tuner has insufficient IF bandwidth for supplying DTV IF signals to a demodulator for DTV broadcasting signals such as Fang's 120. The combination as suggested by the Examiner destroys the Fang reference for its intended purpose, as well as destroying Weintraub *et alii* for its intended purpose. If proposed modification would render the prior art invention being modified unsatisfactory for its originally intended purpose, then there is not suggestion or motivation to make the proposed modification. **In re Gordon**, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984); MPEP § 2143.01

The rejection presumes there is some motivation for making the Weintraub *et alii* receive digital broadcast television signals usefully, but fails to provide any evidence of such motivation in the prior art, as would support such presumption. As noted above, the IF amplifiers for analog TV signals will not be suitable for broadcast DTV signals. TV remote controls transmitting in the infrared frequencies have supplanted other types of TV remote control. The rejection furnishes no evidence that the Weintraub *et alii* remote control is or was ever manufactured. One notes that since their remote control re-transmits wirelessly in the TV band, the device has to be operated at very low power levels. Weintraub *et alii* indicate that their apparatuses transmit only one foot distance, which does not make control very remote. One notes that, for reception via cable or satellite or the packed DTV spectrum in major markets, the empty channel required by the Weintraub *et alii* remote control may be unavailable. If any of these remote control devices are still in use, it is extremely unlikely that anyone would seriously consider reconditioning them to receive broadcast digital television signals.

Judging from the current record, the Examiner's motivation for trying to make the Weintraub *et alii* receive digital broadcast television signals usefully is an attempt to reconstruct Applicant's claimed invention, using the references merely as parts boxes and using Applicant's application as the blueprint for such reconstruction. The Examiner should know that this is not permissible examining practice when seeking to establish a *prima facie* case for obviousness. It

is fundamental that motivation for making a novel combination must be found in the prior art in order to establish a *prima facie* case for obviousness.

The Examiner seeks to find motivation for combining Fang with Weintraub *et alii* in the knowledge generally available to one of ordinary skill in the art, without offering expert testimony or citing any evidence as to the existence of that knowledge. The Examiner cites **In re Fine**, 837 F.2d 1071, 5 USPQ2d 1596 (CA FC 1988) and **In re Jones** 958 F.2d 347, 21 USPQ2d 1941 (CA FC 1992) in support of this dubious procedure. A “rote invocation” of the high level of skill in the art does not provide the necessary motivation to combine the teachings of prior art to render a claimed invention obvious. **In re Rouffet**, 149 F3d. 1350, 47 USPQ2d 1453 (CA FC 1998). “It is fundamental that rejections under 35 U.S.C. § 103 must be based on evidence comprehended by the language of that section.” **In re Grasselli and Hardman**, 713 F. 2nd 731, 739, 218 USPQ 769, 775 (CA FC 1983) citing **In re McKellin, Mageli and D’Angelo**, 529 F.2d 1324, 1329, 188 USPQ 428, 432 (CCPA 1976).

Contrary to what Examiner asserts, receivers for digital broadcast TV signals have many more parts than receivers for analog TV receivers, so reduction in parts count does not furnish a basis for combining Weintraub *et alii* and Fang. The analog demodulator **21** in Weintraub *et alii* can essentially consist of a series diode and shunt RC, for example, while the digital demodulator **120** in Fang requires a phase splitter and complex-signal synchrodyne apparatus, each of which elements comprises many respective parts. The ADC **100** and shaping filter **110** are required to digitize the signal supplied to the digital demodulator **120**.

The argument for combining the references based on knowledge generally available to one of ordinary skill in the art is an “obvious to try” argument. **In re O’ Farrell**, 853 F.2d 894, 903, 7 USPQ 2d 1673, 1681 (CA FC 1988) was indicated in **In re Eli Lilly & Co.**, 902 F.2d 943, 14 USPQ 2d 1741, 1743 (CA FC 1990) to define “obvious to try” as when prior art gives “only general guidance as to the particular form of the claimed invention or how to achieve it”. An “obvious-to-try” situation exists when a general disclosure may pique the scientist’s curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain sufficient teaching of how to obtain the desired result or that the claimed result would be obtained if certain directions were pursued. **In re Eli Lilly & Co.**, op.

cit. Obvious to try is not the standard of 35 U.S.C. § 103. **In re Tomlinson**, 53 CCPA 1421, 363 F.2d 198, 150 USPQ 623 (1966); **In re Dien**, 54 CCPA 1027, 371 F. 2d 886, 152 USPQ 550 (1967); **In re Goodwin**, 576 F.2d 375, 377, 198 USPQ 1, 3 (CCPA1978); **In re Yates**, 663 F.2d 1054, 211 USPQ 1149 (CCPA1981).

Disregard for the unobviousness of the results of “obvious to try” experiments disregards the “invention as a whole” concept of § 103. **In re Dien**, op. cit., **In re Wiggins**, 55 CCPA 1356, 397 F.2d 356, 158 USPQ 199 (1968), **In re Antonie**, 559 F.2d 618, 195 USPQ 6,8 (CCPA 1977). Exception to rule that discovery of optimum value of variable in known process is normally obvious occurs when parameter was not recognized to be result effective variable. **In re Antonie**, op. cit. The effect of converting to IF in the antenna amplifier upon the operation of the channel-equalization and echo-suppression filtering of a DTV receiver was not recognized in the prior art.

As pointed out in the response to the 35 USC 102 rejection of claim 1, Weintraub *et alii* does not put one in possession of Applicant’s invention. Neither does Fang. **In re Spada**, **Dewey & Almu Chemical Co. v. Minex Co., Inc.** and **Straussler v. U.S.** required that prior art put one in possession of Applicant’s invention in order for a claim to be anticipated under 35 USC 102 based on a single reference. This requirement that prior art put one in possession of Applicant’s invention obviously also applies in order for a claim to be anticipated under 35 USC 103 based on a combination of references, since this is a weaker basis for rejection than rejection under 35 USC 102 based on a single reference.

Neither Weintraub *et alii* or Fang is in the antenna amplifier field. There is nothing in them having to do with transmission line linkage of a “tuner contained in a package for installation together with said antenna and remote from any subsequent receiver apparatus” to subsequent receiver apparatus. Neither is particularly pertinent to the problem of reducing the echoes that the channel-equalization and echo-suppression filtering of a DTV receiver has to cope with. Neither is particularly pertinent to the problem of avoiding antenna amplifier overload by strong signals in channels other than that to be viewed. “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem

with which the inventor was concerned." **In re Oetiker**, 977 F.2d 1443, 24 USPQ2d 1443, 1445 (CA FC 1992); MPEP § 2141.01(a).

A primary reason for Applicant relocating the tuner to be at the antenna is to convert all DTV signals to a reduced number of intermediate-frequency DTV signals for transmission down a cable of substantial length to the remaining DTV receiver apparatus. This facilitates proper termination of the transmission line for all signal frequencies, since the length of the transmission line can be cut to suit the restricted range(s) of intermediate frequency signal. Proper termination avoids multipath distortion that has to be suppressed by adaptive digital filtering in the remaining DTV receiver apparatus which adaptive digital filtering equalizes the channel for the baseband digital television signal and suppresses echoes therein. There is no recognition of this important interaction or any enabling suggestion thereof in either the Weintraub *et alii* or the Fang patents. The references do not even disclose a transmission line, at least not one of the sort to generate the problematic echoes Applicant's invention addresses.

The rationale of the Eibel case requires that we consider the unobvious cause of the problem solved, as well as the solution proposed, in arriving at a final determination of whether the invention claimed is obvious within the meaning of section 103. **In re Conover**, 134 USPQ 238, 241 (CCPA 1962). Mere existence of basic teachings in prior art does not render obvious a new claim combining such teachings since a claim combining prior art elements can embody patentable invention if it represents progress from prior art. **Charvat v. Commissioner of Patents**, 503 F.2d 306, 182 USPQ 577. Patentable invention, within ambit of 35 USC 103 may result even if inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond results inherent in their use; it is proper to inquire as to reasons for making the combination; patentable invention may lie in discovery of source of problem even though remedy may be obvious once source of problem is identified; this is part of "Subject matter as a whole" which should always be considered in determining obviousness of an invention under section 103; court must be alert not to read obviousness into an invention on basis of applicant's own statements, i.e., court must view prior art without reading into that art applicant's teachings; issue is whether teachings of prior art would, in and of themselves and without benefits of applicant's disclosure, make invention as a whole, obvious. **In re Spinnoble**, 56PA 823, 405 F.2d 578, 160 USPQ 237 (CCPA 1969).

Although the rejection of claim 2 as previously submitted is traversed, claim 2 is amended to better frame applicant's invention, if need be for purposes of appeal. There many references readily available showing more complete DTV receiver circuitry than Fang, and a more assiduous examiner might have selected one of them as a basis for rejecting claim 2, considered solely or in combination with Weintraub *et alii*. E.g., Fig. 1 of U.S. patent No. 5,479,449 issued 26 December 1995 to C. B. Patel and A. L. R. Limberg, titled "DIGITAL VSB DETECTOR WITH BANDPASS PHASE TRACKER, AS FOR INCLUSION IN AN HDTV RECEIVER" shows apparatus for recovering video and audio signals from the baseband DTV signal. Accordingly, the amendment of claim 2 requires no further search of the prior art in order to be considered.

Claim 1, which positively recites the elements of just the remote tuner located at the antenna, does not extend in its scope to all elements involved in the important interaction of this remote tuner, the cable it drives and the channel-equalization and echo-suppression filtering in the further digital television signal reception apparatus. Claim 1 does not positively recite elements of the further digital television signal reception apparatus that recovers baseband digital television signals. In particular, claim 1 does not specifically recite the adaptive digital filtering connected for equalizing the channel for said baseband digital television signal and suppressing echoes therein. It is this adaptive digital filtering that is relieved of having to suppress echoes arising in the transmission line connecting from the remote tuner to the further digital television signal reception apparatus. As explained to the Examiner in a telephone conversation a year or so ago, claim 1 purposely omitted these elements because the remote tuner was likely to be manufactured and sold independently of the further digital television signal reception apparatus. Accordingly, the important interaction between the remote tuner and the channel equalizer was necessarily implicit in the construction of the remote tuner.

Claim 2 as previously presented also did not specifically recite the adaptive digital filtering connected for equalizing the channel for said baseband digital television signal and suppressing echoes therein. So, the important interaction between the remote tuner, the download and the channel equalizer was only implicit in claim 2.

However, claim 2 is drawn to include not only the tuner at the antenna, but also the further digital television signal reception apparatus as well. After reflection, it appears to Applicant that claim 2 is improved by positively reciting the “adaptive digital filtering connected for equalizing the channel for said baseband digital television signal and suppressing echoes therein, adaptation of said adaptive digital filtering being facilitated by said tuner applying similar intermediate frequencies to the first end of said transmission line irrespective of which of said digital television signals within very-high-frequency or ultra-high-frequency bands is selected from which to generate said similar intermediate frequencies; and a symbol decoder connected for receiving said baseband digital television signal after equalization thereof and suppression of echoes therein, said symbol decoder connected for supplying data to the remainder of said digital television signal receiver and feeding back said data to said adaptive digital filtering to support the adaptation thereof”. All the elements necessary for supporting the important interaction between the remote tuner, the download and the channel equalizer are explicitly set forth in claim 2 as currently amended. The sought after effect of “adaptation of said adaptive digital filtering being facilitated by said tuner applying similar intermediate frequencies to the first end of said transmission line irrespective of which of said digital television signals within very-high-frequency or ultra-high-frequency bands is selected from which to generate said similar intermediate frequencies” can be explicitly stated. These amendments put claim 2, which is infringed by the combination of the FIG. 1 and FIG. 2 apparatuses with the transmission line connecting them, into a form that clarifies what constitutes infringement of this embodiment of Applicant’s invention.

A combination claim containing elements old in the art may be patented, not only when it discloses a “new function” within the meaning of *Lincoln Engineering*...but also when by cooperation of the elements claimed, it discloses a new result that represents a marked improvement over prior art. **Jamesburg Corp. v. Litton Industrial Products Inc.**, 199 USPQ 645 (CCA2 1978). Amendment of claim 2 to include “adaptive digital filtering connected for equalizing the channel for said baseband digital television signal and suppressing echoes therein” brings all the elements that cooperate in suppressing downline echoes into the claimed combination. This simplifies the issues that would be involved in appeal of claim 2, should such prove necessary.

Claim 2 is also amended in its preamble to make clear that the “further digital television signal reception apparatus” recited in claim 1 corresponds at least in part to the “digital television signal receiver” recited in claim 2. This avoids the possibility of double inclusion, which possibility previously escaped Applicant’s attention.

Closing Remarks

The patentability of the claim 1 and claim 2 inventions is evident to anyone familiar with the prior-art practice concerning antenna amplifiers for the VHF or UHF bands used in terrestrial broadcasting of TV signals. The prior-art antenna amplifiers were broadband low-noise amplifiers that were untuned or used fixed tuning rather than adjustable tuning. Experts in the ATSC were unaware of the appreciable reduction of the echo spectrum presented to the channel-equalization and echo-suppression filtering in the receiver for broadcast DTV signals, that was made possible by being able to better terminate the antenna downlead for 6-MHz-wide IF signals than for all the VHF and UHF TV bands when RF signals were sent down the downlead. Better termination is possible because the downlead can be cut to a prescribed number of half wavelengths for the IF signal(s), which is impossible for various RF signals from a wide frequency spectrum. Antenna amplifier installers had long installed channel reduction filters between TV antennas and antenna amplifiers to prevent overload by very strong TV signals, apparently without any need for a tunable antenna amplifier being perceived.

Respectfully submitted,



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Attachments: USPAT 2,448,908
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